Ten-year trends and outcomes in cardiogenic shock related to first-time acute myocardial infarction: a nationwide population-based cohort study.

Introduction: Despite declining incidence and mortality for acute myocardial infarction, cardiogenic shock remains a severe complication with poor in-hospital prognosis. Little is known about the temporal trends in hospitalization with acute myocardial infarction-related cardiogenic shock (AMI-CS) and the long-term prognosis.

Purpose: We aimed to investigate the hospitalization with first-time AMI-CS and subsequent 1-year mortality.

Methods: In this nationwide Danish cohort study we identified from 2005 through 2015 patients with first-time acute myocardial infarction and compared those with and without cardiogenic shock (defined by either an ICD-10 diagnosis code with cardiogenic shock and/or procedure code with inotropes or vasopressors). Patient characteristics and 1-year mortality were compared between groups using Kaplan-Meier plots and multivariable Cox regression analysis.

Results: We included 96,030 patients with acute myocardial infarction of whom 5.4% had cardiogenic shock. Median age was 69.7 years (IQR 59.0-80.1) and 37.5% were female among those without cardiogenic shock and 70.2 years (IQR 61.4-78.1) and 33.0% were female in those with cardiogenic shock. We observed no change in hospitalization with cardiogenic shock during the study period (5.45% in 2006 vs 5.54% for 2016, P for difference 0.6). One-year mortality was higher among those with cardiogenic shock relative those without (See Figure). Crude 1-year mortality risk associated with AMI decreased over time from 23.4% in 2006 vs 11.5% in 2016 (p for difference <0.0001) and this was consistent for AMI patients without CS (21.4% in 2006 vs 9.4% in 2016, p <0.0001) and patients with AMI-CS (58.1% in 2006 vs 46.2% in 2016, p <0.0001). When comparing patients with AMI-CS to those without in multivariable analysis, AMI-CS was associated with a 1-year mortality hazard ratio of 5.38 (95% CI 5.17-6.61)).

Conclusion: In a large population-based setting, this study suggests that the hospitalization for first-time AMI-CS was stable from 2005 through 2015, while mortality improved with time. However, the grave outcome related to AMI-CS remains with a 5-times higher mortality compared to AMI patients without CS.
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